

IN THE CLAIMS:

Please amend the claims as follows:

Claims 1 to 4 (Cancelled)

5. (Currently Amended) A robotic paint applicator located in an enclosed paint booth having a potentially combustible atmosphere, said robotic paint applicator comprising: a first substantially air-tight housing enclosure including a first explosion proof electric motor therein, a second substantially air-tight housing enclosure mounted on said first housing enclosure containing a second explosion proof electric motor therein, and a robot arm mounted on said second housing enclosure having a paint applicator, said first and second explosion proof electric motors each including an enclosed motor housing, a gas inlet and a gas outlet, a source of non-combustible gas located outside said enclosed paint booth, a first gas line connected to said source of non-combustible gas and separate gas lines connecting said first gas line to each of said gas inlets of said motor housings directing non-combustible gas into said motor housings through said gas inlets of said motor housings, creating a positive pressure of non-combustible gas in said motor housings, preventing entry of said potentially combustible atmosphere and said non-combustible gas received in said first and second enclosures from said gas outlets of said motor housings creating a positive pressure of non-combustible gas in said in said first and second housing enclosures, preventing entry of said potentially combustible atmosphere in said first and second enclosures, a valve controlling flow of non-combustible gas through said first gas line and a pressure sensitive control connected to said valve maintaining a predetermined pressure of non-combustible gas in said housing enclosures.

Claims 6 to 10 (Cancelled)

11. (Currently Amended) A method of protecting a paint robot, wherein said paint robot includes a plurality of relatively movable substantially air-tight robot housing enclosures each having an explosion proof motor therein including a motor housing having a gas inlet and a gas outlet spaced from said gas inlet, said method comprising the following steps:

directing a non-combustible gas under pressure into said gas inlet of each of said motor housings, creating a positive pressure of non-combustible gas within said motor housings; [and]

directing said non-combustible gas from said motor housings into said robot housing enclosures creating a positive pressure of non-combustible gas within said robot housing enclosures[-]; and

controlling said positive pressure of non-combustible gas by continuously determining said pressure of non-combustible gas and operating a valve to maintain said pressure of non-combustible gas at a pressure greater than atmospheric pressure.

12. (Original) The method of protecting a paint robot as defined in Claim 11, wherein said method includes purging said motor housings and said robot housing enclosures by directing said non-combustible gas to said gas inlets of each of said motor housings at a pressure of at least about four bars.

13. (Cancelled)

14. (New) A robot for use in a potentially combustible atmosphere, comprising:

a substantially air-tight first robot component enclosure having an explosion proof electric motor therein;

a second robot component enclosure mounted on said first robot component enclosure for movement relative to said first robot component enclosure upon actuation of said explosion proof electric motor;

said explosion proof electric motor including a motor housing enclosing electrical components of said electric motor including a rotor and a stator having a gas inlet communicating with said rotor and stator and a gas outlet spaced from said gas inlet; and

a source of non-combustible gas under pressure connected to said gas inlet of said motor housing directing non-combustible gas under pressure into said motor housing including said rotor and stator, thereby purging and preventing entry of potentially combustible atmosphere into said motor housing, and said gas outlet of said motor housing directing non-combustible gas under pressure into said first substantially air-tight robot component enclosure, thereby purging and maintaining a positive pressure of non-combustible gas in said substantially air-tight first robot component enclosure and preventing entry of potential combustible atmosphere into said first robot component enclosure.

15. (New) The robot as defined in Claim 14, wherein said second robot component enclosure is substantially air-tight and includes a second explosion proof electric motor and said second explosion proof electric motor including a second motor housing enclosing electrical components of said second electric motor including a rotor and a stator, a gas inlet communicating with said explosion proof rotor and stator and a gas outlet spaced from said gas inlet of said second motor housing, and said source of non-combustible gas connected to said gas inlet of said second motor housing, thereby purging and directing non-combustible gas under pressure into said second motor housing preventing entry of potentially combustible gas into said second motor housing including said rotor and stator, and said gas outlet of said second motor housing directing non-combustible gas into said second robot component enclosure, thereby purging and maintaining a positive pressure of non-combustible gas in said second robot component enclosure and preventing entry of potentially combustible gas into said second robot component enclosure.

16. (New) The robot for use in a potentially combustible atmosphere as defined in Claim 14, wherein said source of non-combustible gas is connected to said gas inlet of said motor housing by a gas line having a valve and a pressure sensitive control connected to said valve operating said valve to maintain a predetermined pressure of non-combustible gas in said motor housing and said substantially air-tight first robotic enclosure.

17. (New) The robot as defined in Claim 14, wherein said robot is a robotic paint applicator for use in a paint spray booth having a potentially combustible atmosphere, said second robot component enclosure including a robot arm having a paint applicator.

18. (New) The robot as defined in Claim 14, wherein said explosion proof electric motor is an electric servomotor and said motor housing is substantially air-tight having an inlet chamber, including said gas inlet, and a second chamber containing said electrical components of said electric motor, including said rotor and stator and said gas inlet circulating non-combustible gas through said second chamber.

19. (New) A robotic paint applicator for use in an enclosed paint spray booth having a substantially combustible atmosphere, said robotic paint applicator comprising:

a first substantially air-tight robot housing enclosure having a first explosion proof electric motor therein;

a second substantially air-tight robot housing enclosure mounted on said first air-tight robot housing enclosure for relative movement thereon having a second explosion proof electrical motor therein;

said first and second explosion proof motors including a motor housing enclosing electrical components of said first and second explosion proof electric motors including a rotor and a stator, and said motor housings each including a gas inlet communicating with said rotor and stator and a gas outlet;

a source of non-combustible gas located outside said paint spray booth connected to each of said gas inlets of said motor housings of said first and second explosion proof motors directing non-combustible gas into said gas inlets of said motor housings to said rotor and stator, purging said motor housings of combustible gas and maintaining a positive pressure of non-combustible gas within said motor housings; and

said gas outlets of said motor housings directing non-combustible gas under pressure into said first and second substantially air-tight robot housing enclosures purging said first and second air-tight robot housing enclosures of combustible gas and maintaining a positive pressure of non-combustible gas in said first and second substantially air-tight robot housing enclosures.

20. (New) The robotic paint applicator as defined in Claim 19, wherein said source of non-combustible gas is connected to said gas inlets of said motor housings by a gas line having a valve and a pressure sensitive control in each of said first and second substantially air-tight robot housing enclosures connected to said valve maintaining a predetermined positive pressure of non-combustible gas in said first and second substantially air-tight robot housing enclosures.

21. (New) The robotic paint applicator as defined in Claim 19, wherein one of said first and second substantially air-tight robot housing enclosures includes a third explosion proof electric motor having a motor housing enclosing electric components of said third explosion proof electric motor including a rotor and a stator, and said motor housing of said third explosion proof electric motor including a gas inlet communicating with said rotor and stator and a gas outlet, and said source of non-combustible gas connected to said gas inlet of said motor housing of said third explosion proof electric motor directing non-combustible gas into said motor housing of said third explosion proof electric motor to said rotor and stator and said gas outlet of said motor housing of said third explosion proof electric motor directing non-combustible gas into said one of said first and second substantially air-tight robot housing enclosures.

22. (New) A method of protecting a robot in a potentially combustible atmosphere, said robot including a substantially air-tight robot enclosure having an explosion proof electric motor therein and said explosion proof electric motor including a substantially air-tight motor housing enclosing electric components of said explosion proof electric motor including a rotor and a stator having a gas inlet communicating with said rotor and stator and a gas outlet, said method comprising the following steps:

directing a non-combustible gas to said gas inlet of said motor housing at a first pressure into said motor housing including said rotor and stator, and directing said non-combustible gas from said gas outlet of said motor housing into said robot enclosure, thereby purging said motor housing and said robot enclosure of combustible gas;

directing said non-combustible gas to said gas inlet of said motor housing at a second pressure greater than atmospheric pressure and less than said first pressure to said gas inlet of said motor housing and directing said non-combustible gas from said gas outlet of said motor housing into said robot enclosure, thereby maintaining a positive pressure of non-combustible gas in said motor housing and said robot enclosure preventing combustible gas from entering said motor housing and said robot enclosure; and

actuating said explosion proof electric motor with said rotor and stator in a non-combustible atmosphere within said motor housing.

23. (New) The method as defined in Claim 23, wherein said method includes directing said non-combustible gas to said gas inlet of said motor housing at a first pressure of about 4 bars.

24. (New) The method as defined in Claim 22, wherein said method includes directing said non-combustible gas to said gas inlet of said motor housing by supplying a volume of said non-combustible gas to said gas inlet of about 5 to 10 times a volume of said motor housing and said enclosure.

25. (New) The method as defined in Claim 22, wherein said method includes directing a non-combustible gas to said gas inlet of said motor housing at a second pressure of at least 0.8 mbar.